

1. (Currently Amended) A polymer, comprising: ~~made of~~
(i) at least one non-brominated monomer; and
(ii) at least one brominated monomer having the structure A-B-C, wherein

A is a phenyl substituted with 3-5 bromine atoms,

B is a C₁ to C₄ alkyl[[],] optionally substituted with 1 to 8 bromine atoms, and

C is an acrylic or methacrylic group,

wherein the said polymer comprises a bromine content being characterized in having bromine contents of 20% (w/w) or more, and the polymer comprises at least one non-brominated monomer having a Tg lower than 0°C or the polymer has a Tg lower than 0°C.

2. (Currently Amended) [[A]] The polymer according to claim 1, wherein said phenyl is substituted with 5 bromine atoms.

3. (Currently Amended) [[A]] The polymer according to claim 1, wherein said alkyl is CH₂.

4. (Currently Amended) [[A]] The polymer according to claim 1, wherein said acrylic group is acrylate.

5. (Currently Amended) [[A]] The polymer according to claim 1, wherein said brominated monomer is penta bromo benzyl acrylate (PBBMA).

6. (Currently Amended) [[A]] The polymer according to claim 1, wherein said bromine ~~contents~~ content is 60-70%.

7. (Currently Amended) [[A]] The polymer according to claim 1, wherein said bromine content is 25-50%.

8. (Currently Amended) [[A]] The polymer according to claim 1, wherein said bromine content is 20-35%.

9. (Currently Amended) [[A]] The polymer according to ~~any one~~ ~~of the preceding claims~~ claim 1, ~~having a~~ wherein the non-brominated monomer ~~that~~ is a specialty monomer.

10. (Currently Amended) [[A]] The polymer according to the ~~preceding~~ claim 9, wherein said specialty monomer is selected from monomers that are cross-linking, surface active, and/or adhesion promoting.

11. (Currently Amended) [[A]] The polymer according to claim 9 wherein said specialty monomer is selected from sodium salt of 2-acrylamido-2-methyl propane sulphonic acid, betal-carboxymethyl acrylate, ammonium allyloxypolyethoxy(10)sulphate, laurethoxy(23)methacrylate, laurethoxy(25)methacrylate, allyl methacrylate, and hydroxyl ethyl methacrylate, glycidyl methacrylate, ammonium salt of α -sulfo- ω -[1-(Alkoxy)methyl-2-(2-propenyloxy)ethoxy]- ω -hydro-poly(oxy-1,2,-ethanediyl), ammonium salt of α -[1-(Alkoxy)methyl-2-(2-propenyloxy)ethoxy]- ω -hydro-poly(oxy-1,2,-ethanediyl), ditrimethylo propane tetraacrylate, ethoxilated trimetholopropene triacrylate, and trimethylo propane acrylate.

12. (Currently Amended) [[A]] The polymer according to any one of claims 1 to 8 claim 1, having a wherein the non-brominated monomer is selected from the group consisting of acrylic monomers, vinyl acetate, and styrene, and [[or]] a styrene derivative.

13. (Currently Amended) [[A]] The polymer according to claim 12 the preceding claim, wherein said acrylic monomer is selected from the group consisting of acrylamide, acrylic acid,

acrylonitrile, butyl acrylate, ethyl acrylate, 2-ethyl hexyl acrylate, and methyl methacrylate.

14. (Currently Amended) [[A]] The polymer according to ~~any one~~ ~~of claims 1-8~~ claim 1, having a non-brominated monomer of the formula $R_1CH=CR_2C(O)A$, wherein

A is selected from the group consisting of OR_3 , NR_3R_4 , and CN ; and

R_1 and R_2 are each independently selected from H and alkyl, said alkyl being linear or branched, and

~~each of~~ R_3 and R_4 are each independently selected from may be H, alkyl, alkenyl, alkoxy, polyalkoxy, alkanol, or ether, each of which may be linear or branched, substituted or unsubstituted.

15. (Currently Amended) [[A]] The polymer according to the preceding claim 14, wherein the carbon-containing R groups have each independently comprise between 1 and 15 carbons.

16. (Currently Amended) [[A]] The polymer according to the preceding claim 14, wherein the alkyl groups have comprise between 1 and 4 carbon atoms.

17. (Canceled)

18. (Currently Amended) A mixture comprising a polymer according to ~~any one of the preceding claims~~ claim 1 and more than one surface active agent.

19. (Currently Amended) [[A]] The mixture according to ~~the~~ preceding claim 18, further ~~containing~~ comprising antimony oxide.

20. (Currently Amended) An aqueous dispersion, comprising:
a polymer ~~made of~~ comprising a bromine-containing monomer having the structure A-B-C, wherein

A is a phenyl, substituted with 3-5 bromine atoms,

B is a C₁ to C₄ alkyl[[,]] optionally substituted with ~~one~~ 1 to 8 bromine atoms, and

C is an acrylic or methacrylic group; and
at least one non-brominated monomer, ~~characterized in that~~ said

wherein the polymer comprises a bromine content of at least 20 % (w/w) and the dispersion has comprises a solid content of at least 40%.

21. (Currently Amended) [[An]] The aqueous dispersion according to claim 20, wherein said phenyl is substituted with 5 bromine atoms.

22. (Currently Amended) [[An]] The aqueous dispersion according to claim 20, ~~or 21~~ wherein said alkyl is CH₂.

23. (Currently Amended) [[An]] The aqueous dispersion according to claim 20, wherein said brominated monomer is PBBMA.

24. (Currently Amended) [[An]] The aqueous dispersion according to claim 20, wherein said polymer ~~is according to any one of claims 1 to 17~~ comprises:

at least one non-brominated monomer; and

at least one brominated monomer having the structure

A-B-C, wherein

A is a phenyl substituted with 3-5 bromine atoms,

B is a C₁ to C₄ alkyl optionally substituted with
1 to 8 bromine
atoms, and

C is an acrylic or methacrylic group,
wherein the polymer comprises a bromine content of 20%
(w/w) or more, and the polymer comprises at least one non-
brominated monomer having a Tg lower than 0°C or the polymer has
a Tg lower than 0°C.

25. (Currently Amended) [[An]] The aqueous dispersion
according to any one of claims 20 to 24 claim 20, further
comprising at least two different surface active agents.

26. (Currently Amended) An aqueous dispersion according to the
preceding claim 25, wherein one or more of said surface active
agents is an alkyl aryl.

27. (Currently Amended) [[An]] The aqueous dispersion
according to any one of claims 20 to 26 claim 20, further
containing comprising antimony oxide.

28. (Currently Amended) [[An]] The aqueous dispersion according to ~~any one of claims 20 to 27~~ claim 20, consisting essentially of solid particles in aqueous solution, wherein the size of said solid particles is less than 2000nm.

29. (Currently Amended) [[An]] The aqueous dispersion according to ~~the preceding~~ claim 28, wherein said size is between 50 and 1000nm.

30. (Currently Amended) [[An]] The aqueous dispersion according to ~~the preceding~~ claim 29, wherein said size is between 80 and 400 nm.

31. (Currently Amended) [[An]] The aqueous dispersion according to ~~any one of claims 20 to 30~~ claim 20, wherein said polymer has a density of 1.2g/cc or more.

32. (Currently Amended) [[An]] The aqueous dispersion according to ~~any one of claims 19 to 30~~ claim 20, wherein said polymer has a molecular weight of 500,000 and above.

33. (Currently Amended) [[An]] The aqueous dispersion according to ~~the preceding~~ claim 32, wherein said polymer has a molecular weight of 1,000,000 or above.

34. (Currently Amended) [[An]] The aqueous dispersion according to ~~any one of claims 20 to 33~~ claim 20, which is stable for at least six months in -7-35°C with no direct sunlight.

35. (Currently Amended) [[An]] The aqueous dispersion according to ~~any one of claims 20 to 33~~ claim 20, which is stable for at least six months in 5 to 35°C with no direct sunlight.

36. (Currently Amended) A product comprising antimony oxide and a polymer ~~made of~~ comprising at least one bromine-containing monomer and at least one non-brominated monomer, wherein said product is fire-retardant.

37. (Currently Amended) [[A]] The product according to claim 36, wherein said polymer, comprises:

at least one non-brominated monomer; and

at least one brominated monomer having the structure

A-B-C, wherein

A is a phenyl substituted with 3-5 bromine atoms,

B is a C₁ to C₄ alkyl, optionally substituted with

1 to 8 bromine atoms, and

C is an acrylic or methacrylic group,

wherein the polymer comprises a bromine content of 20% (w/w) or more, and the polymer comprises at least one non-brominated monomer having a Tg lower than 0°C or the polymer has a Tg lower than 0°C is according to any one of claims 1 to 17.

38. (Currently Amended) [[A]] The product according to claim 36 or 37, comprising a textile, said textile being printed, sprayed, or impregnated with an aqueous dispersion according to any one of claims 27-35, comprising:

antimony oxide; and

a polymer comprising

a bromine-containing monomer having the structure A-B-

C, wherein

A is a phenyl, substituted with 3-5 bromine atoms,

B is a C₁ to C₄ alkyl optionally substituted with 1 to 8 bromine atoms, and

C is an acrylic or methacrylic group; and at least one non-brominated monomer;

wherein the polymer comprises a bromine content of at least 20 % (w/w) and the aqueous dispersion comprises a solid content of at least 40%.

39. (Currently Amended) [[A]] The product according to claim 38, wherein said non-brominated monomer is hydrophobic.

40. (Currently Amended) [[A]] The product according to claim 39, wherein said hydrophobic monomer is selected from the group consisting of butyl Acrylate, 2-ethyl hexyl acrylate, styrene, and styrene derivatives.

41. (Currently Amended) A method for fabricating a fire-retardant textile, comprising printing, spraying or impregnating a textile with an aqueous dispersion, ~~which is~~ according to claim 20 any one of claims 20-35.

42. (Currently Amended) A method for improving the hydrophobicity of a textile, comprising printing, spraying, or impregnating said textile with an aqueous dispersion according to claim 20 any one of claims 20 to 35.

43. (Currently Amended) [[A]] The method according to the preceding claim 42, wherein the polymer dispersed in said dispersion ~~includes~~ comprises a hydrophobic non-brominated monomer.

44. (Currently Amended) [[A]] The method according to claim 41, wherein said hydrophobic non-brominated monomer is selected from the group consisting of butyl Acrylate, 2-ethyl hexyl acrylate, and styrene.

45. (Currently Amended) A method for obtaining an aqueous dispersion of a co-polymer containing, comprising:

~~at least a first monomer and a second monomer, wherein said providing a second monomer that is at least partially dissolved in said a first monomer comprising a brominated aromatic compound, and~~

~~reacts to polymerize therewith polymerizing the first polymer and the second monomer in the presence of water and surfactants, said method being characterized in that said first monomer is a brominated aromatic compound to obtain an aqueous dispersion of a co-polymer.~~

46. (Currently Amended) [[A]] The method according to the preceding claim 45, wherein said brominated aromatic compound has the structure A-B-C, wherein A is a phenyl, substituted with 3-5 bromine atoms, B is a C₁ to C₄ alkyl, optionally substituted with one 1 to 8 bromine atoms, and C is an acrylic or methacrylic group.

47. (Currently Amended) [[A]] The method according to claim 45 or 46 wherein the phenyl in said first monomer is substituted with 5 bromine atoms.

48. (Currently Amended) [[A]] The method according to claim 45 or 46, wherein the alkyl in said first monomer is CH₂.

49. (Currently Amended) [[A]] The method according to the preceding claim 45, wherein said first monomer is PBBMA.

50. (Currently Amended) [[A]] The method according to claim 45, wherein said first monomer is a bromostyrene or a derivative thereof.

51. (Currently Amended) [[A]] The method according to claim 45 any one of claims 45 to 50, wherein said second monomer is styrene or a styrene derivative.

52. (Currently Amended) [[A]] The method according to claim 45, any one of claims 45 to 51 wherein the amount of said water is sufficient to obtain a such that the obtained dispersion has having at least 40% solid content.

53. (Currently Amended) [[A]] The method according to claim 45
~~any one of claims 45 to 52~~, wherein the ratio between said first monomer and non-brominated monomers is sufficient to obtain a
~~such that the obtained polymer has~~ having at least 20% (w/w) bromine content.

54. (Currently Amended) [[A]] The method according to claim 45
~~any one of claims 45 to 53~~, wherein at least one of said surfactants is reactive, and the obtained polymer ~~contains~~
comprises said first monomer, said second monomer, and said reactive surfactant.

55. (Currently Amended) [[A]] The method according to claim 45
~~any one of claims 45 to 54~~, wherein said first and second monomer react with at least one other monomer, such that the polymer obtained ~~comprises by the method is of~~ said first monomer, said second monomer, and said at least one other monomer.

56. (Currently Amended) [[A]] The method according to the
~~preceding~~ claim 55, wherein said at least one other monomer is a specialty monomer.

57. (Currently Amended) [[A]] The method according to the preceding claim 56, wherein said specialty monomer is selected from monomers that are cross-linking, surface active, and adhesion promoting.

58. (Currently Amended) [[A]] The method according to claim 56, ~~or 57~~ wherein said specialty monomer is selected from the group consisting of N-(Hydroxymethyl)acrylamide, sodium salt of 2-acrylamido-2-methyl propane sulphonic acid, betal-carboxymethyl acrylate, ammonium allyloxypolyethoxy(10)sulphate, laurethoxy(23)methacrylate, laurethoxy(25) methacrylate, allyl methacrylate, and hydroxyl ethyl methacrylate, glycidyl methacrylate, ammonium salt of α -sulfo- ω -[1-(Alkoxy)methyl-2-(2-propenyloxy) ethoxy]- ω -hydro-poly(oxy-1,2,-ethanediyl), ammonium salt of α -[1-(Alkoxy)methyl-2-(2-propenyloxy)ethoxy]- ω -hydro-poly(oxy-1,2,-ethanediyl).

59. (Currently Amended) [[A]] The method according to claim 55, wherein said at least one other monomer is selected from the group consisting of acrylic monomers and vinyl acetate.

60. (Currently Amended) [[A]] The method according to the preceding claim 59, wherein said acrylic monomer is selected from the group consisting of acrylamide, acrylic acid, acrylonitrile, butyl acrylate, ethyl acrylate, 2-ethyl hexyl acrylate, and methyl methacrylate.

61. (Currently Amended) [[A]] The method according to claim 55, wherein said at least one other monomer is of the formula $R_1CH=CR_2C(O)A$, wherein

A is selected from the group consisting of OR_3 , NR_3R_4 , and CN ; and

R_1 and R_2 are each independently selected from H and alkyl, said alkyl being linear or branched, and

~~each of~~ R_3 and R_4 are each independently selected from ~~may~~ be H, alkyl, alkenyl, alkoxy, polyalkoxy, alkanol, or ether, each of which may be linear or branched, substituted or unsubstituted.

62. (Currently Amended) [[A]] The method according to the preceding claim 61, wherein the carbon-containing R groups have between 1 and 15 carbons.

63. (Currently Amended) [[A]] The method according to the preceding claim 62, wherein the alkyl groups have between 1 and 4 carbon atoms.

64. (Currently Amended) [[A]] The method according to claim 45 any one of claims 45 to 63, comprising:

(i) dissolving said first monomer in a first liquid to obtain a solution, wherein said first liquid includes said second monomer optionally together with surfactants;

(ii) mixing said solution with water and optionally also with surfactants to obtain a stable emulsion comprising water, surfactants, and said first monomer; and

(iii) reacting said stable emulsion with an initiator to obtain an aqueous dispersion of a co-polymer containing at least said first monomer and said second monomer.

65. (Currently Amended) [[A]] The method according to the preceding claim 64, wherein said first liquid does not include comprise surfactants and in (ii) said solution is mixed with water and surfactants.

66. (New) The polymer according to claim 1, wherein said phenyl is substituted with 5 bromine atoms.

67. (New) A polymer, comprising:

(i) at least one non-brominated monomer comprising a specialty monomer; and

(ii) at least one brominated monomer having the structure A-B-C, wherein

A is a phenyl substituted with 3-5 bromine atoms,

B is a C₁ to C₄ alkyl optionally substituted with

1 to 8 bromine

atoms, and

C is an acrylic or methacrylic group,

wherein the polymer comprises a bromine content of at least 20% (w/w) .

68. (New) The polymer according to claim 67, wherein said specialty monomer is selected from monomers that are cross-linking, surface active, and/or adhesion promoting.

69. (New) The polymer according to claim 68, wherein said specialty monomer is selected from the group consisting of sodium salt of 2-acrylamido-2-methyl propane sulphonic acid, betal-carboxymethyl acrylate, ammonium allyloxy polyethoxy(10) sulphate, laurethoxy(23) methacrylate, laurethoxy(25) methacrylate, allyl methacrylate, and hydroxyl ethyl methacrylate, glycidyl methacrylate, ammonium salt of α -sulfo- ω -[1-(Alkoxy)methyl-2-(2-propenyloxy) ethoxy]- ω -hydro-poly(oxy-1,2,-ethanediyl), ammonium salt of α -[1-(Alkoxy)methyl-2-(2-propenyloxy)ethoxy]- ω -hydro-poly(oxy-1,2,-ethanediyl), ditrimethylo propane tetraacrylate, ethoxilated trimetholopropene triacrylate, and trimethylo propane acrylate.